

University of Massachusetts Amherst

ScholarWorks@UMass Amherst

Cranberry Station Extension meetings

Cranberry Station Outreach and Public Service
Activities

Winter 1-30-2020

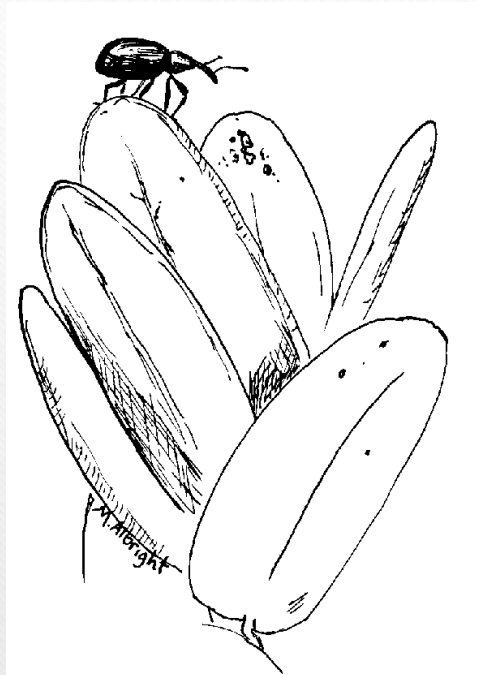
2020 Update Mtg: Avaunt and Weevil Update

Martha Sylvia

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Part of the [Agriculture Commons](#)



Cranberry Weevil

Anthonomus musculus

Avaunt and Weevil Update

UMass
Cranberry
Station
Research
& Extension



UMass Cranberry Station

Marty Sylvia

January 30th 2020



Cranberry Weevil

- Resistant to organophosphates in 2000
- Lorsban
- Guthion
- Parathion
- Imidan
- Orthene
- Sevin



Cranberry Weevil

- Resistant to Avaunt?
- 2019 results look very bad
- Most populations showed substantial change in control from 15 years ago

Weevil Bioassays

“Indoxacarb Susceptibility Testing”

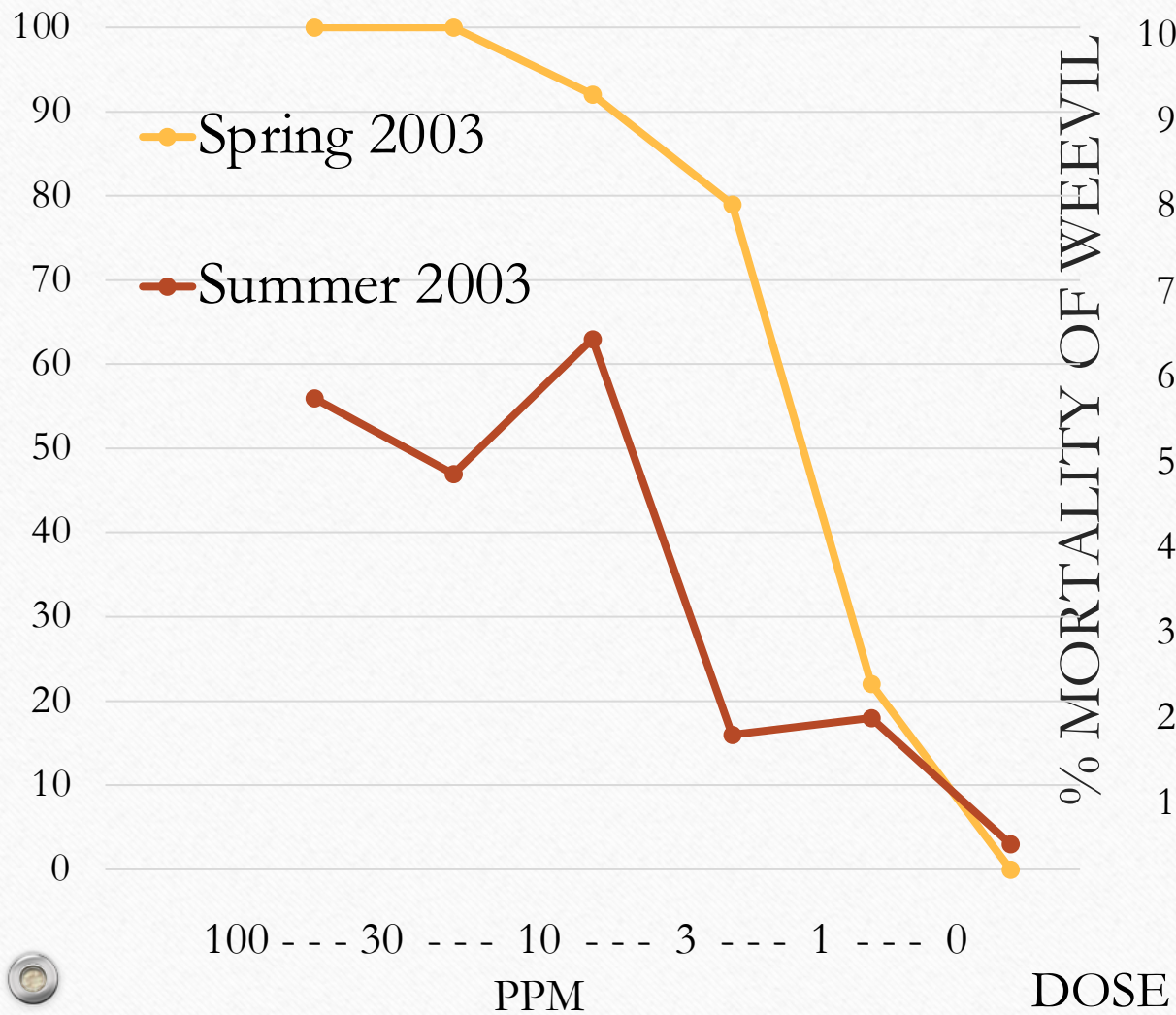


- FMC supplied plastic trays and serial dilutions of Avaunt
- 1 weevil, 24 replicates
- Collected from specific bogs
- End of May
- Allowed to feed on treated foliage
 - (3 uprights)
- 0-300 ppm avaunt dips

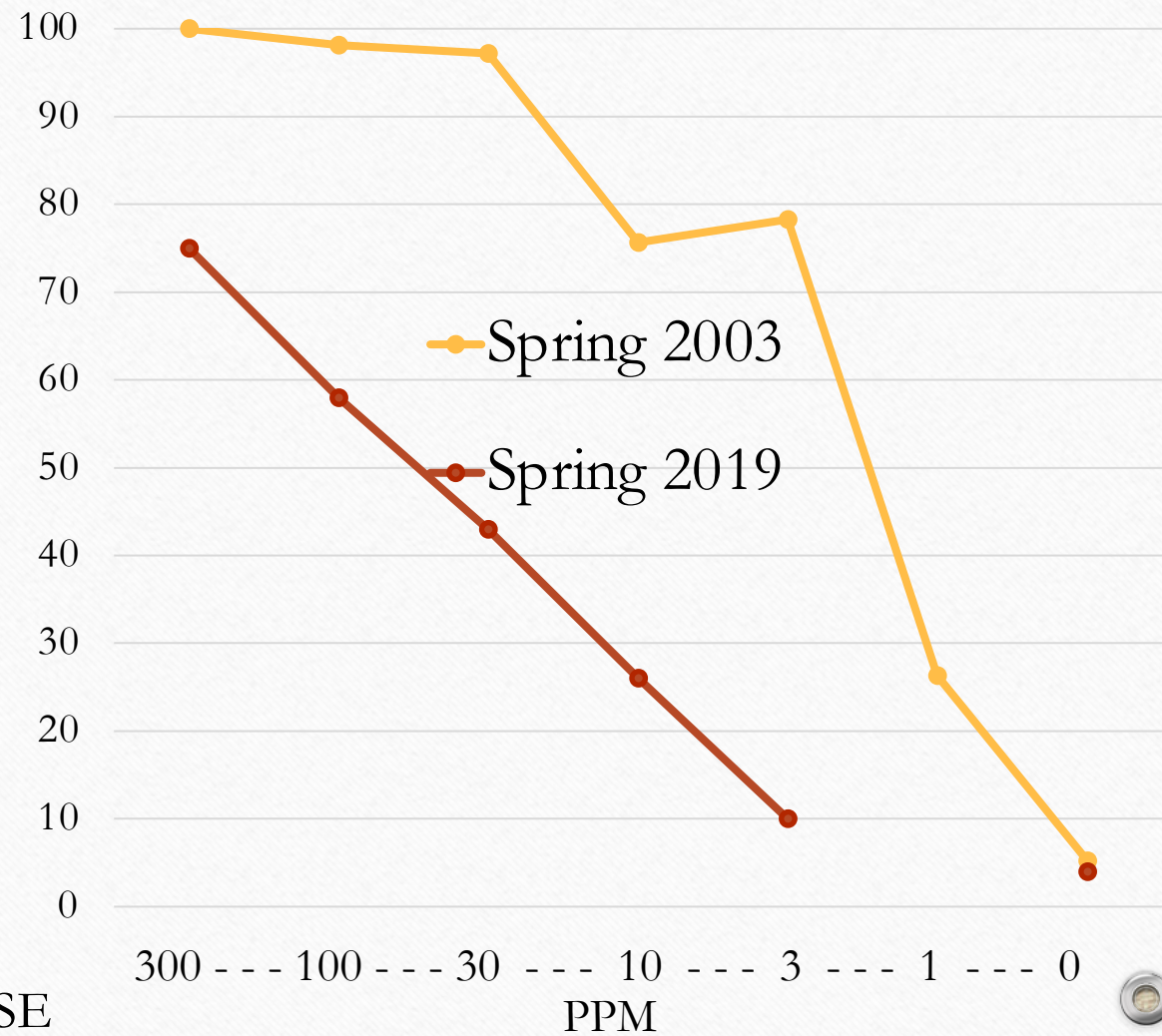


Assess mortality after 3 days (72 hours)

Weevil Susceptibility of Avaunt in 2003
State Bog Comparison

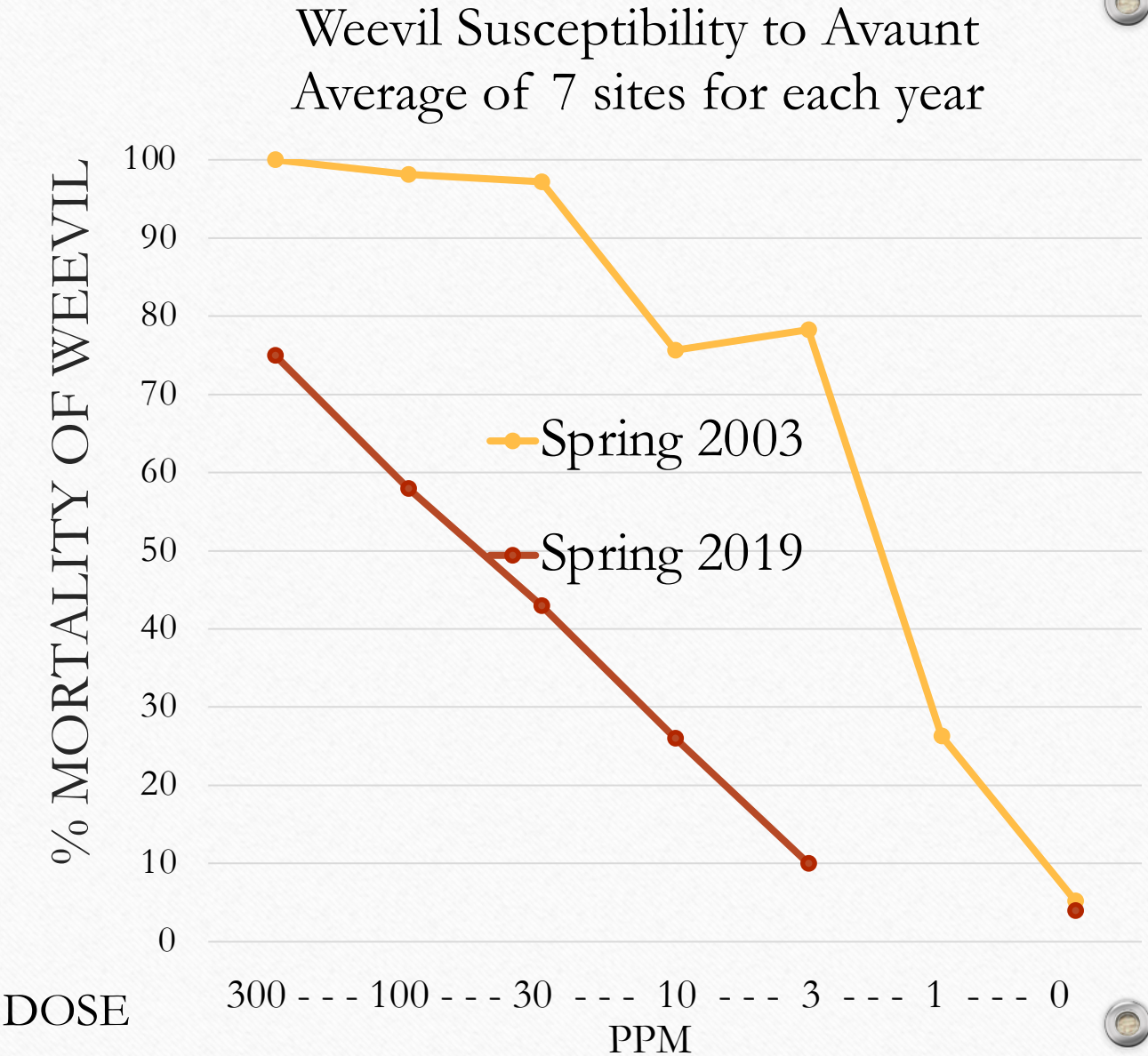


Weevil Susceptibility to Avaunt
 Average of 7 sites for each year



% Mortality
Cranberry Weevil
Avaunt Bioassay

	2003	2019
Dose	SPRING	SPRING
PPM	Spring 2003	Spring 2019
300	100%	75%
100	98%	58%
30	97%	43%
10	76%	26%
3	78%	10%
1	26%	
0	5%	4%



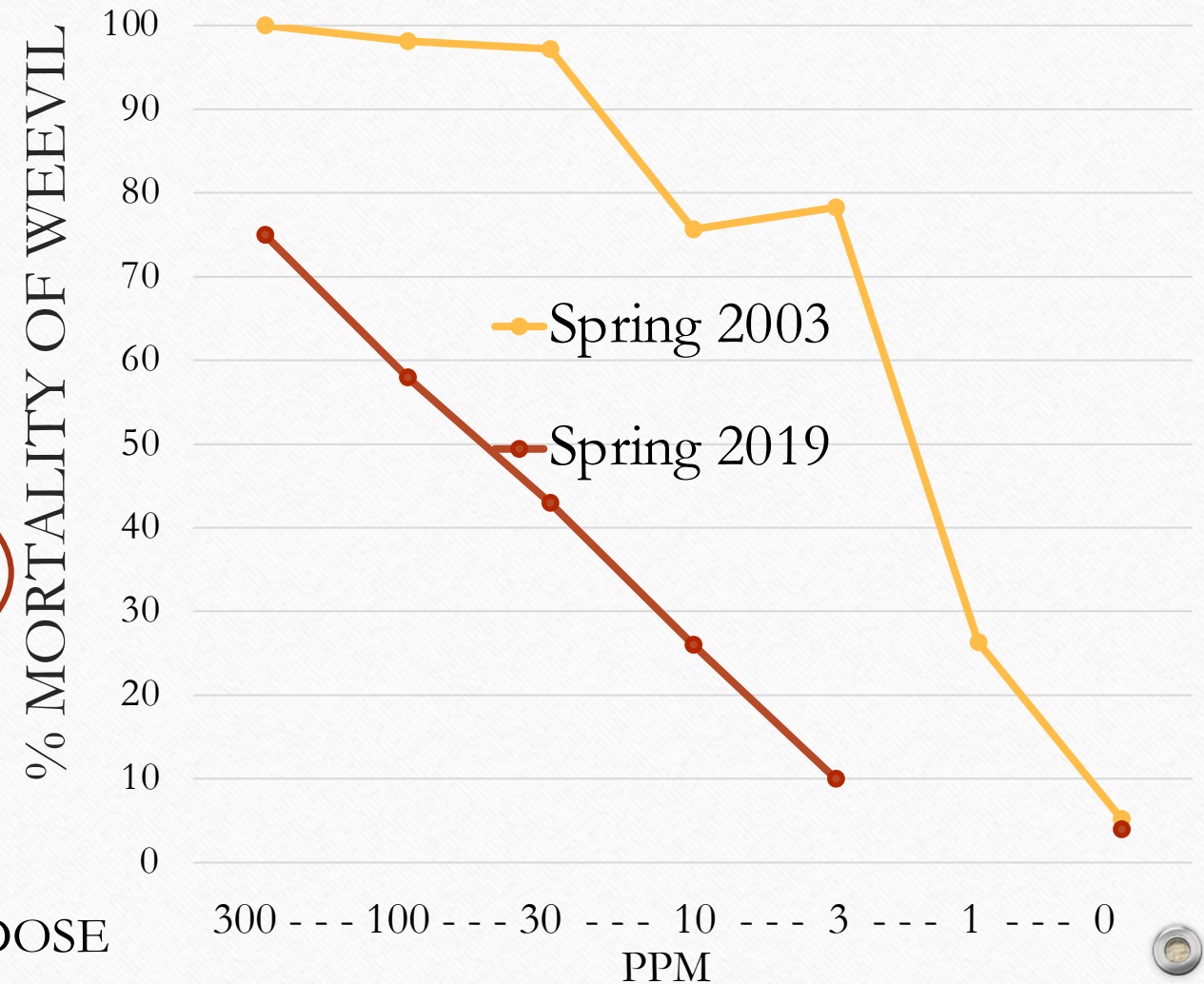
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Chemigation rate??

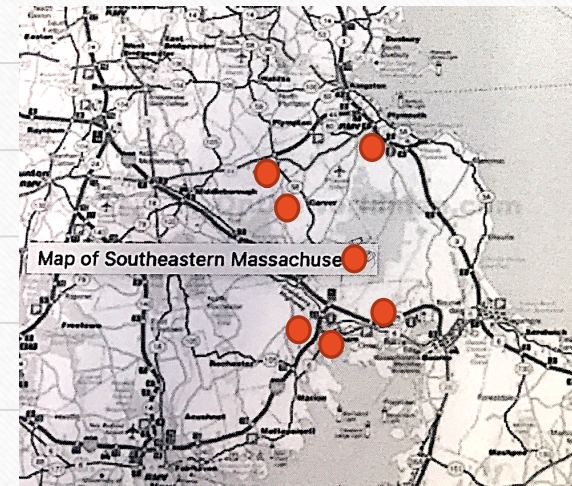
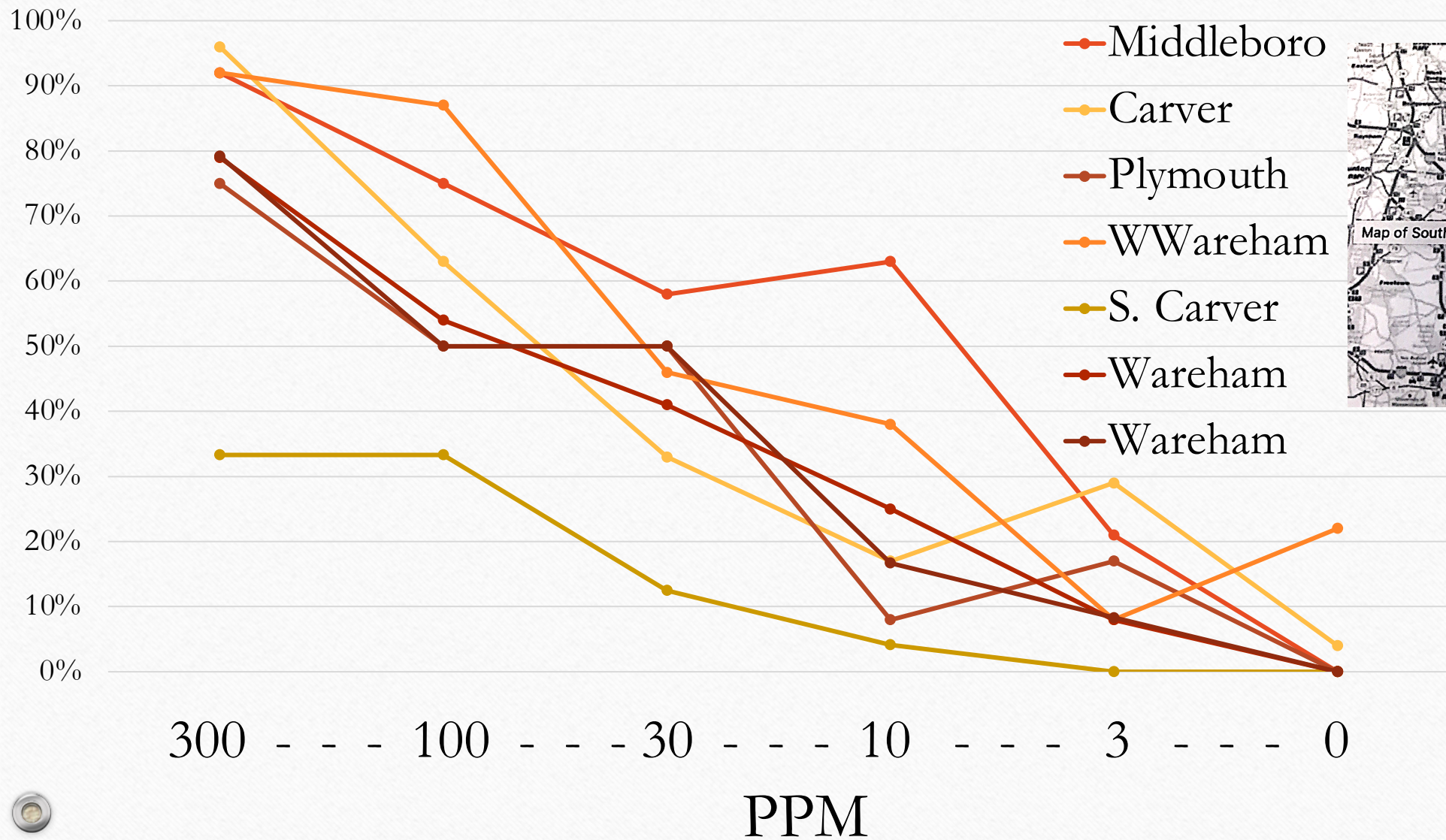
DOSE

Weevil Susceptibility to Avaunt
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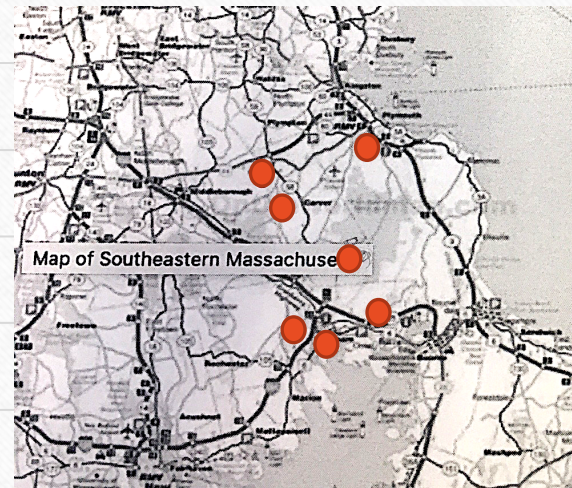
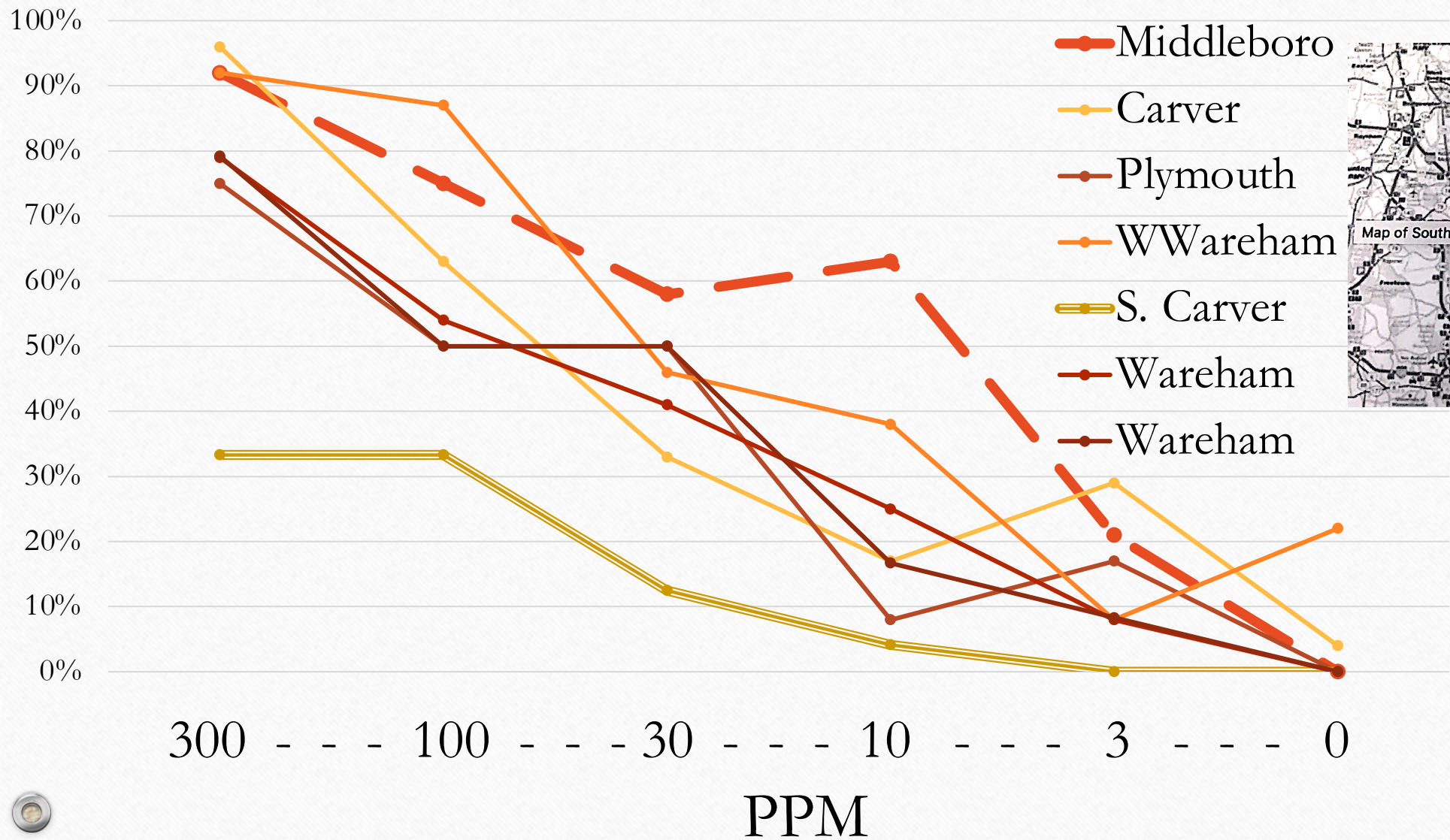
7 Sites Avaunt -- % Weevil Mortality 2019

% MORTALITY OF WEEVIL



7 Sites Avaunt -- % Weevil Mortality 2019

% MORTALITY OF WEEVIL



FMC
Agricultural
Solutions



ALTACOR
INSECT CONTROL

EXIREL
INSECT CONTROL

Exirel (*cyantraniliprole*)

- Similar to Altacor (*Chlorantraniliprole*)
- Diamide chemistry
- Ryanodine receptor modulator
- Rapidly protects crops from feeding damage
- Bee toxic, so do not apply during bloom
- Add adjuvant
- \$100.00 at full rate per acre

FMC
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Solutions



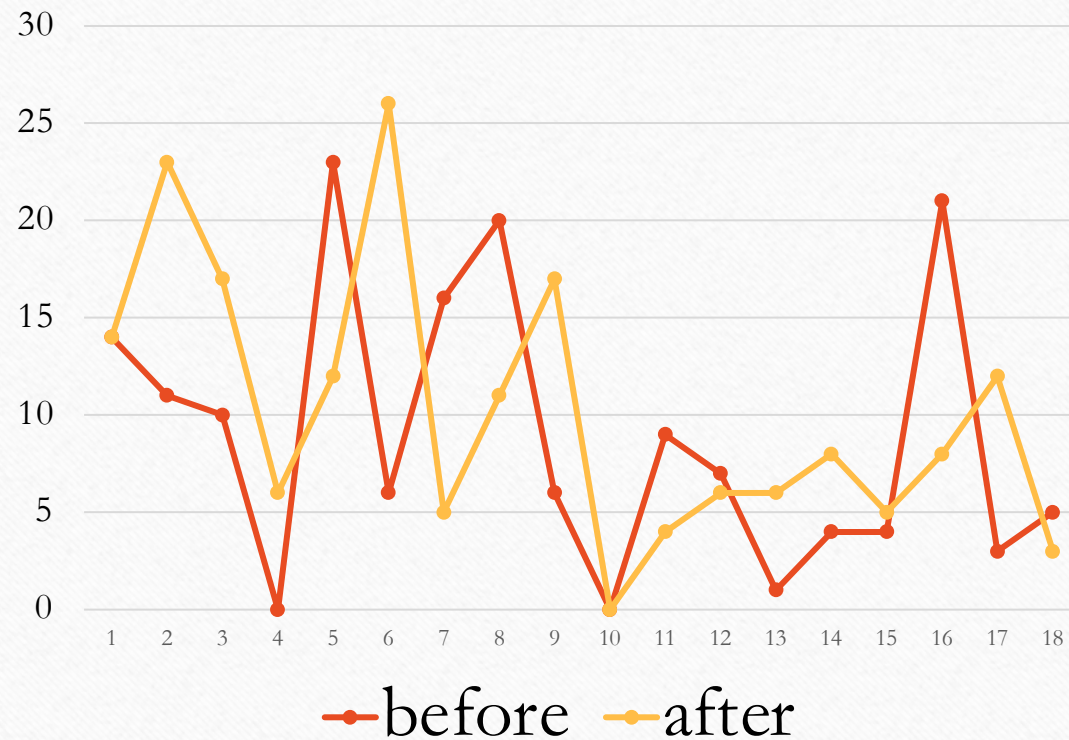
Exirel

(cyantraniliprole)

- 10-20.5 fl oz, 3 apps at full rate
- 12 REI
- 7 days between apps
- Chemigation okay
- 14 day PHI
- Most handlers prefer longer PHI

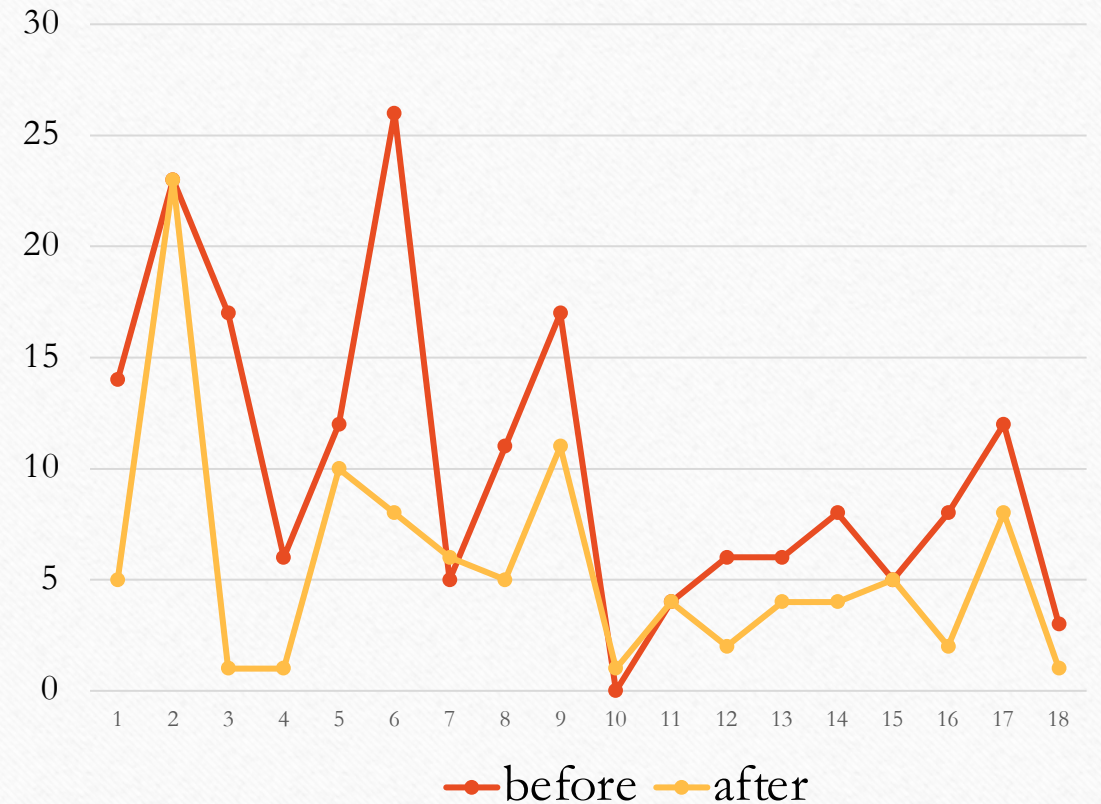
Cranberry Weevil Sweep Counts Wareham

Exirel before and after



Sweep 5/24, spray 5/25, sweep 5/31

Avaunt before and after



Sweep 5/31, spray 6/1, sweep 6/5

Before Exirel Spray

Cranberry Bogs

4 1

8 6 0 2

0 0 1 2

9 6 4 3 3

Weevil
counts on
bog before
spray

After Exirel Spray

1 0

3 1 1 0

Not sprayed
19 13 6 4

4 1 6 4 3

Weevil
counts on
bog after
spray

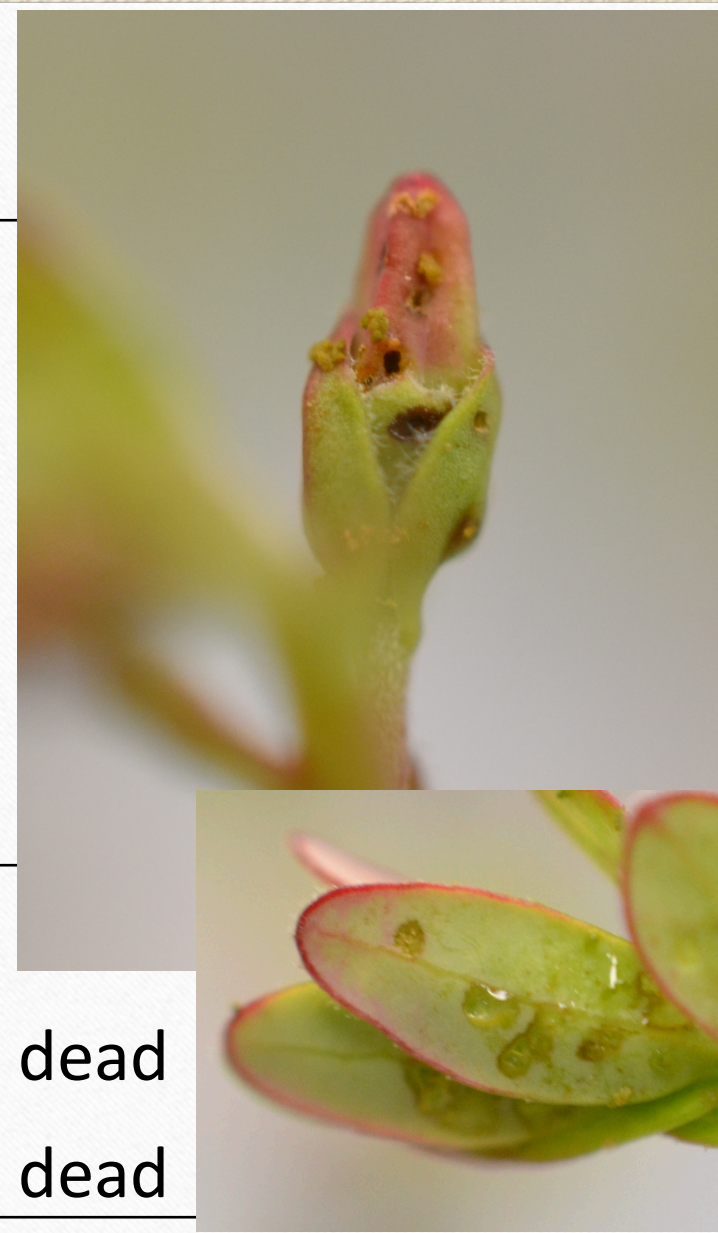
Lab Trial

7 day Exirel feeding trial

5/17-5/23/2019

each weevil had 3 uprights to feed on, number of feeding holes counted under microscope

	Feeding	Mortality
Control	14 holes/weevil	23/24 alive
150 ppm EX	1 hole/weevil	10 moribund/14 dead
300 ppm EX	2 holes/weevil	10 moribund/14 dead

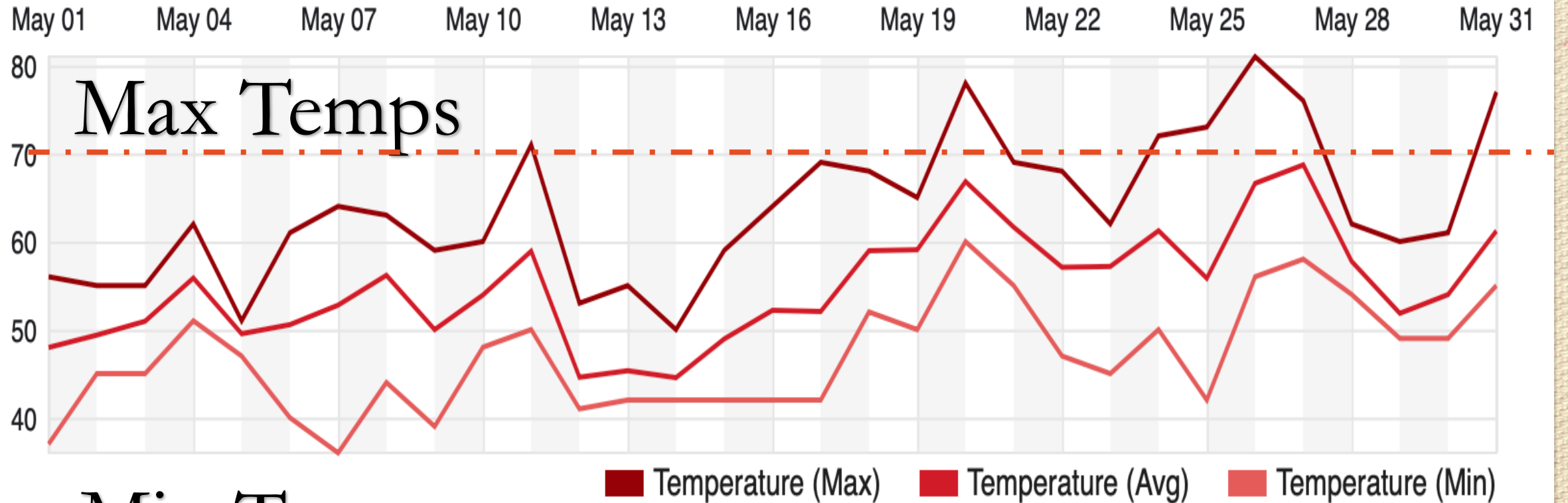


Avaunt *indoxacarb*

- Has to be ingested
- Warm and sunny, not cold, cloudy, and windy
- Adjuvant helps
- Hits cutworms and spanworms too



MAY TEMPERATURES 2019



Min Temps



Actara

(*thiamethoxam*)

- Moves into plant (systemic)
- Neurotoxic
- Not broad spectrum
- Does not impact cutworms or spanworms

GROUP 4A INSECTICIDE



syngenta®

Insecticide

For control of certain insect pests infesting listed crops

Active Ingredient:

Thiamethoxam¹ 25.0%

Other Ingredients: 75.0%

Total: 100.0%

¹CAS No. 153719-23-4

Actara is a water-dispersible granule.

KEEP OUT OF REACH OF CHILDREN.

CAUTION

See additional precautionary statements and directions for use in booklet.

EPA Reg. No. 100-938 EPA Est. 67545-AZ-1

Product of India
Formulated in the USA

SCP 938A-L2M 1213
4033546

**7 pounds,
8 ounces (120 oz)**
Net Weight

Target: Cranberry Weevil

- 2 - 4 oz/A
- 12 oz/season
- 7 day between apps
- 30 day PHI
- Most handlers want 45 day PHI

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Use Restrictions:

- **Maximum Actara Allowed per Growing Season:** Do not exceed a total of 12.0 oz/Acre (0.188 lb ai/A) of Actara or 0.188 lb ai of thiamethoxam containing products per acre per growing season.
- **Application Timing:** Apply before pests reach damaging levels. Scout fields and treat again if populations rebuild to potentially damaging levels. Apply the higher rate within the listed rate range for heavy infestations.
- **Pre-Harvest Interval (PHI):** 30 days
- **Minimum Interval Between Applications:** 7 days
- **Water Volume:** Use sufficient water volume to ensure thorough coverage of foliage. Do not use less than 10 GPA for ground applications. Actara may be applied through a solid set sprinkler irrigation system at 200-650 gal total volume /A, and if applied during a regular irrigation set, only at the end of the irrigation set. For best results, it is recommended that 200-300 gal total volume /A be used for irrigation application.
- **Do not** apply by air.
- **Do not** apply to flow-through bogs.
- **Do not** apply within 25 feet of bodies of water.
- **Do not** irrigate for the first 48 hours following application.
- **Do not** release water immediately following application; hold water within the bog system for 5 days following application prior to release.



Refer to Pollinator Precautions section.
Refer to Resistance Management section.

State Restricted Use because

- Zone II Restricted
- On Groundwater Protection List
- Other Restrictions...

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HONEYBEE TOXICITY

LD50 Oral

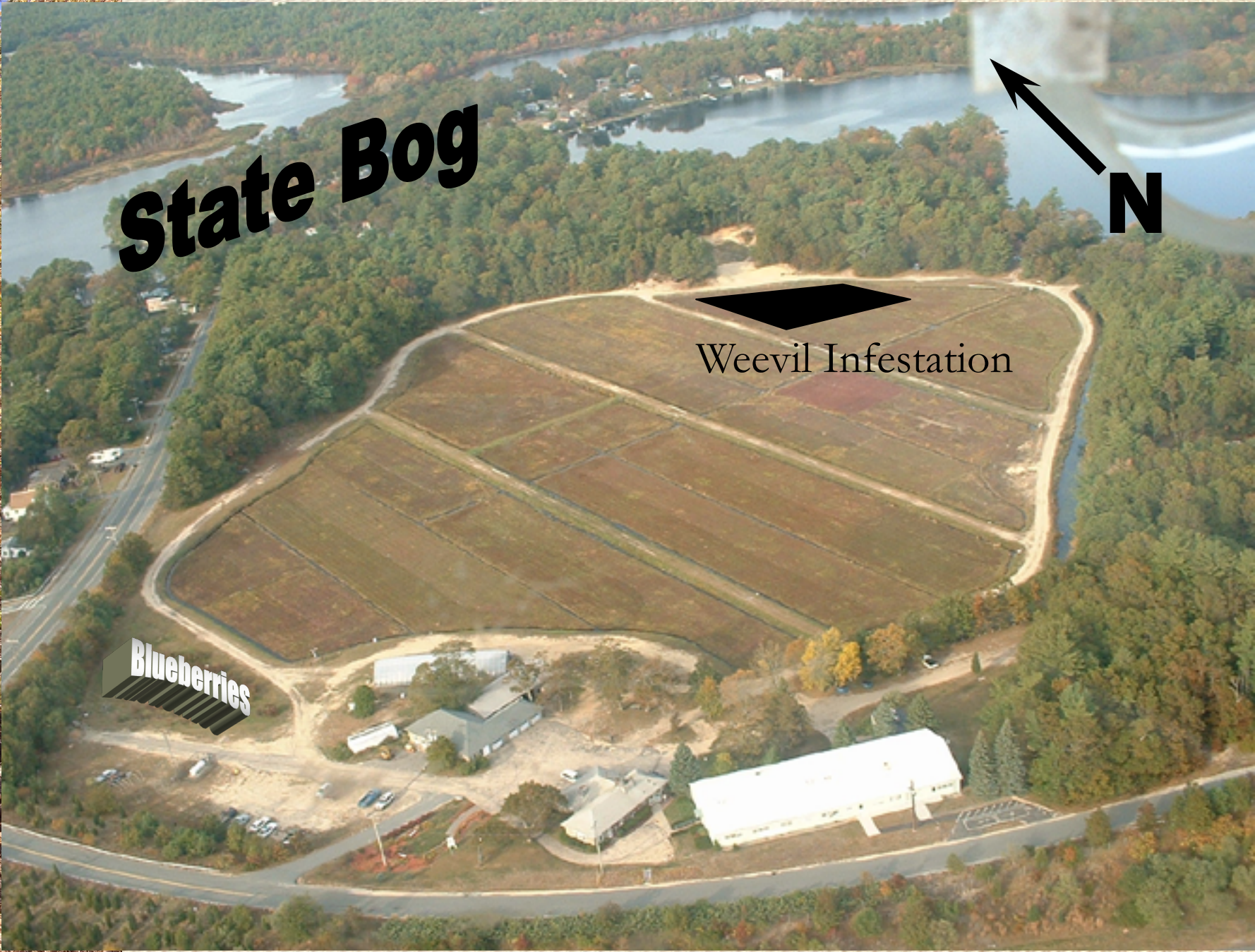
- Belay 0.0014 ug
- Admire 0.0039 ug
- **Actara** 0.005 ug
- Delegate 0.024 ug
- Lorsban 0.11 ug
- Avaunt 0.18 ug
- Diazinon 0.37 ug
- Sevin 1.5 ug

Super
toxic



Highly
toxic







Early Season
Host Plants

Blueberry
Bushes and
Huckleberry

Monitor by
Shaking onto
white paper

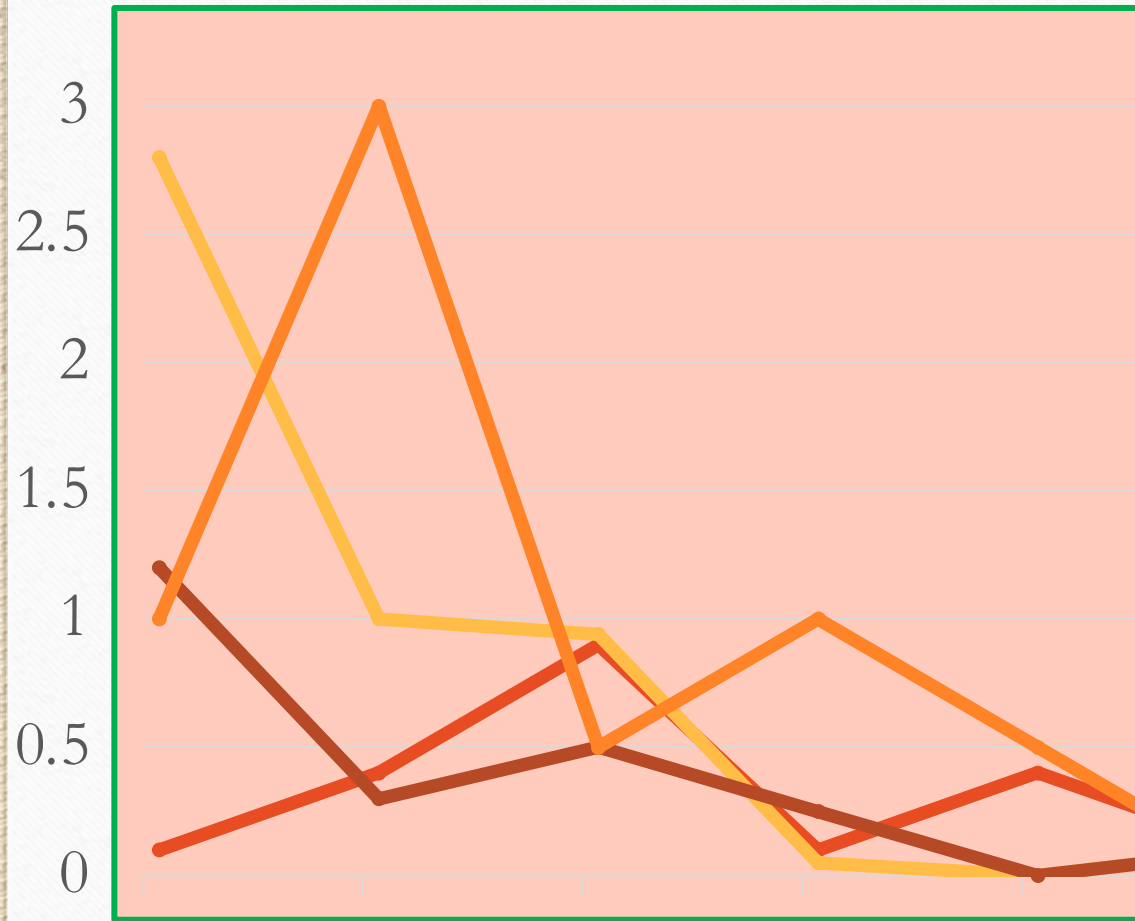
Weevil – Blueberry – Spray – Trap Cropping

- Restricted Use Pyrethroid
- Labeled for blueberry
- High water toxicity, kills fish
- Treat blueberries around edge of bog before they move onto bog

“Can a grower with a private certification on cranberry spray their blueberries with a restricted used compound labeled for blueberry?”

- MDAR says “Yes, you can apply a RUP to blueberries if you have category 30 certification. As long as cranberries are the “main” crop you grow it is fine.”

Average Number of WEEVIL Shaken off Bushes near Bog

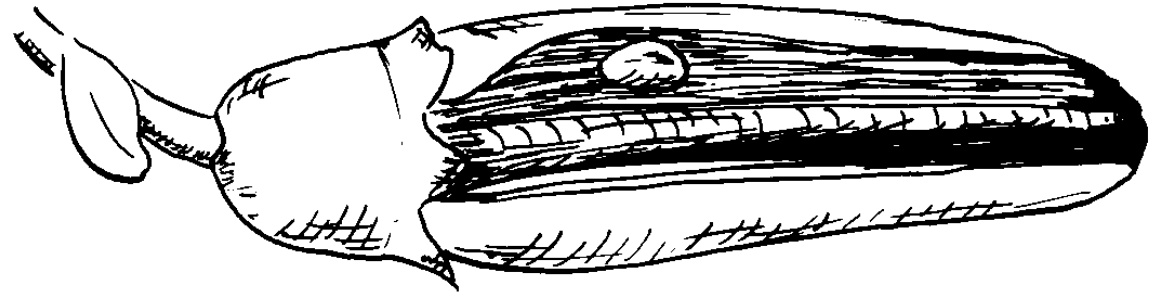


Weevil are moving
in from woods
through May.



8-May 15-May 22-May 29-May 5-Jun 12-Jun 19-Jun 26-Jun 3-Jul

Eggs hatch in 3-9 days
Larvae develop 10-14 days
Pupae hatch out after 1 more week



Weevil
grub

June 15th



July 15th



Workshop title:

UMass Cranberry Management Update

- Location: Rosebrook, Wareham
- Date: 1/30/20
- Time: 7:30AM-4 PM
- Session Number: UMA 2020-20

GET IT SIGNED

- Hilary, Marty, Katie, Anne or Peter
- Leela Saisree or Giverson too!

FILL IN

- YOUR NAME
- YOUR Certification/License Number
- 4 Contact Hours
- Check your category 00, 30 or 33
- YOUR Signature